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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,556	08/26/2003	Hyun-Sang Park	SAM-0450	5511

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EXAMINER

DESIRE, GREGORY M

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/649,556	Applicant(s) PARK ET AL.	
	Examiner Gregory M. Desire	Art Unit. 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/26/03.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23, 26-48 and 51-65 is/are rejected.
- 7) ☒ Claim(s) 24, 25, 49, 50 and 66 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/26/03 & 8/24/05</u> <u>3/12/07</u> | 6) <input checked="" type="checkbox"/> Other: <u>IDS 3/12/07</u> |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-23, 26-48 and 51-65 are rejected under 35 U.S.C. 102(e) as being anticipated by Hall et al (5,786,856).

Regarding claims 1, 26 and 51 Hall discloses,

A motion estimation processor (note fig. 1, block 43) for receiving current video data from a data bus and for generating differential video data based on a difference between the current video data and reference video data;

A transform coder (note fig. 1, block 42) receiving the differential video data directly from the motion estimation processor and for transforming the differential video data from the spatial domain to the frequency domain to generate transformed video data; and

A local memory (note fig. 1, block 42) for storing the transformed video data.

Regarding claims 2, 27 and 52 Hall discloses,

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Wherein the transform coder receives the differential video data directly from the motion estimation processor, independent of the data bus (note fig. 1, block 43 and 112).

Regarding claims 3, 28, and 53 Hall discloses,

Wherein the transformed video data is written directly to the local memory for storage, independent of the data bus (note fig. 3 block 42).

Regarding claims 4, 29 and 54 Hall discloses,

Wherein the transform coder further retrieves the transformed video data from the local memory and inverse-transforms the transformed video data from the frequency domain to the spatial domain to generate inverse-transformed video data (note fig. 1, block 31).

Regarding claims 5, 30 and 55 Hall discloses,

A discrete-cosine transform (DCT) unit (note fig. 1, block 21) for transforming the differential video data from the spatial domain to the frequency domain to generate transformed differential video data; and

An inverse-discrete-cosine transform (IDCT) unit (note fig. 1 block 31) for inverse-transforming the transformed video data stored in the local memory from the frequency domain to the spatial domain.

Regarding claims 6, 31 and 56 Hall discloses,

Wherein the discrete-cosine transform unit receives the differential video data directly from the motion estimation processor, independent of the data bus (note fig. 1, block 43 and 21).

Regarding claims 7, 32 and 57 Hall discloses,

Wherein the discrete-cosine transform unit performs the transforming operation on the differential video data as segments of the differential video data are generated by the motion estimation processor, such that the discrete-cosine transform unit and the motion estimation processor operate contemporaneously on the differential video data (note col. 4 lines 23-47).

Regarding claims 8, 33 and 58 Hall discloses,

A quantization unit (note fig. 1 block 23) for quantizing the transformed differential video data output by the discrete-cosine transform (DCT) unit to generate the transformed video data; and

An inverse quantization unit (note fig. 1. block 29) for inverse-quantizing the transformed video data stored in local memory, an output of which is provided to the inverse discrete-cosine-transform unit.

Regarding claims 9, 34 and 59 Hall discloses,

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Wherein the quantization unit receives the transformed differential video data directly from the discrete-cosine transform unit, independent of the data bus (note fig. 1 block 21 and 23).

Regarding claims 10, 35 and 56 Hall discloses,

Wherein the inverse quantization unit receives the transformed video data directly from the local memory, independent of the data bus (note fig. 1 block 29).

Regarding claims 11 and 36 Hall discloses,

Wherein the inverse-discrete-cosine transform unit receives the output of the inverse quantization unit as the transformed video data directly from the inverse quantization unit, independent of the data bus (note fig. 1 block 29 and 31).

Regarding claims 12, 37 and 61 Hall discloses,

Wherein the transform coder operates in a forward mode and an inverse mode, wherein when in the forward mode of operation, the discrete-cosine-transform unit and the quantization unit are active, and, when in the reverse mode of operation the inverse discrete-cosine-transform unit and the inverse quantization unit are active (note fig. 2 and col. 5 lines 58-67).

Regarding claims 13 and 38 Hall discloses

Wherein the transform coder selects between the forward mode and the inverse

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mode based on a status of the transform coder mode selection signal (note col. 5 lines 35-50)

Regarding claims 14 and 39 Hall discloses,

Wherein the transform coder mode selection signal is generated in response to a count of transformed video signals processed by the local memory (note col. 5 line s1-10 col. 5 lines 1-10 and 35-50).

Regarding claims 15 and 40 Hall discloses,

Wherein the quantization unit (fig. 1, block 23) performs the quantization operation on the transformed differential video data as segments of the transformed differential video data are generated by the discrete-cosine transform unit (note fig. 1 block 21), such that the quantization unit and the discrete-cosine transform unit operate contemporaneously on the transformed differential video data (note col. 5 lines 43-45).

Regarding claims 16 and 40 Hall discloses,

Wherein the inverse-discrete-transform unit (note fig. 1, block 31) performs the inverse-transforming operation on the video data output of the inverse quantization unit as segments of the output data of the inverse quantization unit are generated by the inverse quantization unit, such that the inverse-discrete-transform unit and the quantization unit operate contemporaneously on the output data of the inverse quantization unit (note col. 5 lines 50-55).

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Regarding claims 17, 42 and 62 Hall discloses,

A motion estimation unit for generating a motion vector based on the current video data and the reference video data (fig. 1 block 43);

A mode decision unit for determining a mode of operation based on the motion vector, the mode of operation being one of an intra-mode and an inter-mode (113); and

A motion compensation unit (note fig. 1, block 41) for generating the differential data based on the determined mode of operation, such that when the mode of operation is the intra-mode, the current video data is output by the motion estimation processor as the differential video data, and such that when the mode of operation is the inter-mode, the differential data is generated by the motion compensation unit based on the difference between the current video data and the reference video data (note col. 5 lines 30-42)

Regarding claims 18, 43 and 63 Hall discloses,

A composer for combining the inverse-transformed video data and the reference video data, and for outputting the combined data as reconstructed video data (note fig. 1, reconstructed current MB data).

Regarding claims 19, 44 and 64 Hall discloses,

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Wherein, when the mode of operation is the inter-mode, the reference video data is stored in the local memory and wherein the composer receives the reference video data directly from the local memory, independent of the data bus (note fig. 1, block 42).

Regarding claims 20 and 45 Hall discloses,

Wherein the composer receives the inverse-transformed video data directly from the transform coder, independent of the data bus (note fig. 1, block summation).

Regarding claims 21, 46 and 65 Hall discloses

Wherein the reconstructed video data is output to the data bus, wherein the reconstructed video data from a previous frame is used as the reference video data for a subsequent frame (note fig. 1, reconstructed data into frame memory back to motion estimator).

Regarding claims 22 and 47 Hall discloses,

An output unit for processing the transformed video data and for outputting the transformed video data as compressed video data (note col. 5 lines 46-47).

Regarding claims 23 and 48 Hall discloses

Wherein the output unit comprises a zigzag scanning unit and a variable-length coding (VLC) unit (note fig. 1, block 25) for statistical reduction of the transformed data.

Allowable Subject Matter

3. Claims 24-25, 49-50 and 66 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 24, 49 and 66, distinguishing features are local memory having a first, second and third local memory. Claims 25 and 50 depend on claims 24 and 25. Therefore are also objected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (571) 272-7449. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

G.D.
March 31, 2007

**GREGORY DESIRE
PRIMARY EXAMINER**

